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MORBIDITY AND MORTALITY WEEKLY REPORT

Current Trends

Declining Anemia Prevalence among Children Enrolled in Public Nutrition and Health Programs — Selected States, 1975-1985

The Pediatric Nutrition Surveillance System (PNSS) was established by CDC in 1974 to monitor the growth and hematologic status of children from low-income families participating in such programs as the Special Supplemental Food Program for Women, Infants, and Children (WIC)*; Early Periodic Screening, Detection, and Treatment; and publicly funded maternal- and child-health clinics. The hematologic data collected since 1975 from the states participating in PNSS have demonstrated a steady decline in the prevalence of childhood anemia (*1,2*).

The number of states participating in the surveillance system has increased from five in 1974 to 34 in 1986. Since this changing composition could have influenced the observed anemia trend, data from six states (Arizona, Louisiana, Kentucky, Montana, Oregon, and Tennessee) that have consistently participated in the PNSS since 1975 were analyzed. In these analyses, the following age-specific hemoglobin (Hgb) and hematocrit (Hct) levels were used as cutpoints to define anemia: age 6-23 months, Hgb less than 10.3 gm/dl or Hct less than 31%; age 24-59 months, Hgb less than 10.6 gm/dl or Hct less than 32%; age 60-83 months, Hgb less than 11.0 gm/dl or Hct less than 33%. These cutpoints, which are 0.6 gm/dl Hgb or 2% Hct lower than the commonly used clinical criteria (*3*), were chosen to avoid inclusion of children with borderline anemia.

Between 1975 and 1985, data on 1,680,740 Hgb or Hct measurements obtained from 499,759 children aged 6 months to 5 years were reported from the six states. The majority (83%) of these measurements were from children participating in WIC programs. Overall, the prevalence of anemia declined from 7.8% in 1975 to 2.9% in 1985 (Figure 1). Age-specific analysis using 6-month age intervals demonstrated that the decline occurred among all age groups. In general, anemia prevalences were lower among children seen at follow-up visits than among children of the same age seen for initial visits, although both prevalences declined over the decade.

Reported by Office of Nutrition Svcs, Arizona Dept of Health Svcs; Nutrition Br, Dept of Health Svcs, Div of Maternal and Child Health, Kentucky Cabinet of Human Resources; Nutrition Section, Office of Preven-

*The WIC program, designed to provide nutrition education and specific foods to children up to age 5, lactating mothers, and pregnant and postpartum women, is closely associated with health-care delivery services.

Anemia — Continued

tive and Public Health Svcs, Louisiana Dept of Health and Human Resources; Nutrition/WIC, Clinical Programs Bureau, Health Sciences and Medical Facilities Div, Montana State Dept of Health and Environmental Sciences; WIC Program, Oregon State Health Div; Nutrition and Supplemental Food Programs, Tennessee Dept of Health and Environment; Div of Nutrition, Center for Health Promotion and Education, CDC.

Editorial Note: The prevalence of anemia among children from lower-income families residing in the six selected states with consistent participation in the PNSS declined by 60% between 1975 and 1985. Because of the magnitude and consistency of the decline, and the relatively constant family income criteria used for enrollment in WIC and other public health programs, the decrease in anemia is unlikely to be related to changes in the socioeconomic background of children included in the PNSS. Instead, the changes are probably related to improvements in iron nutrition during infancy and early childhood, which have resulted in lower levels of iron deficiency anemia, the most common form of childhood anemia in the United States (*4*). In view of the decline in anemia prevalence noted at initial screening visits, at least some of the decline appears independent of participation in public health programs. However, the even lower prevalence of anemia observed at follow-up visits suggests that WIC and other public programs also play a role in the decrease of anemia prevalence (*5*).

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4. Dallman PR, Yip R, Johnson C. Prevalence and causes of anemia in the United States, 1976 to 1980. Am J Clin Nutr 1984;39:437-45.
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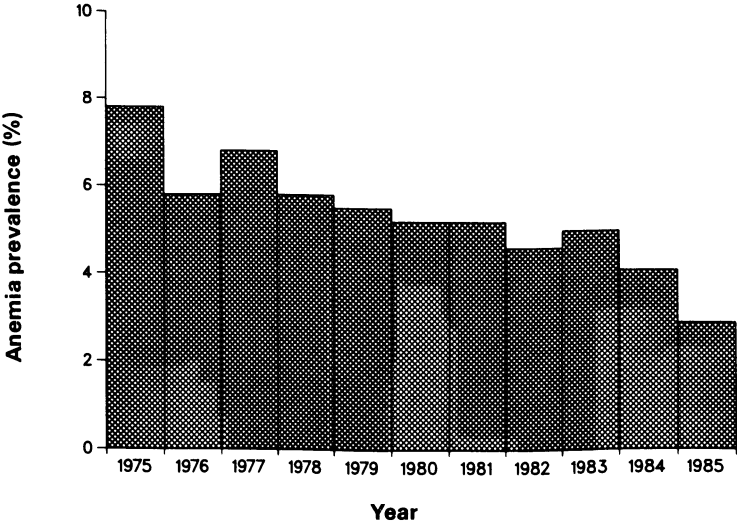
FIGURE 1. Annual anemia prevalence based on low hemoglobin or low hematocrit measurements for children seen at public nutrition or health clinics — six selected states, 1975-1985



Epidemiologic Notes and Reports

Outbreak of Malaria Imported from Kenya

Malaria remains an important problem for U.S. travelers to areas in Africa with chloroquine-resistant *Plasmodium falciparum*, as illustrated by the following report:

On June 26, 1986, a 29-year-old resident of Louisiana became ill en route to the United States from Nairobi, Kenya. He was admitted to a hospital in Shreveport, Louisiana, with a diagnosis of *P. falciparum* malaria on June 28. By June 30, seven additional persons with malaria-like symptoms were admitted to three Shreveport hospitals. All patients received medical care within 2 days of the onset of illness; *P. falciparum* parasites were identified in each patient's blood smears within 2 days after being seen by a physician. All were treated promptly and successfully with quinine and tetracycline.

The eight patients were part of a 10-member church group from Shreveport that had visited Rusinga Island in Lake Victoria in western Kenya June 14-21 and Masai Mara gamepark June 21-23. They had departed for the United States from Nairobi on June 24. All members of the group had taken 500 mg chloroquine weekly as prophylaxis, beginning at least 6 days before their departure for Kenya. Onset of malaria symptoms began 1-6 days after the last chloroquine dose. Analyses of whole-blood specimens obtained when the patients presented at the hospitals documented concentrations of chloroquine (range 75-444 ppb) and desethylchloroquine (range 19-146 ppb), consistent with their prophylaxis histories.

Malaria parasites were not detected in the blood of the two members of the group who did not develop symptoms. One of these persons had been taking 100 mg of tetracycline daily for acne. The remaining uninfected person had reportedly applied insect repellents to exposed areas of the skin more intensively and regularly than had other members of the group.

Reported by R Alsup, MD, J Snyder, MD, A Borne, MD, B Williams, MD, Shreveport, J Mathison, MD, State Epidemiologist, Louisiana Dept of Health and Human Resources; Malaria Br, Div of Parasitic Diseases, Center for Infectious Diseases, CDC.

Editorial Note: Chloroquine-resistant *P. falciparum* in Kenya and Tanzania was first documented in 1978 (*1*) and has spread through much of eastern, southern, and central Africa (*2*). The estimated attack rate of *P. falciparum* malaria among U.S. travelers returning from Kenya has increased from 21 cases per 100,000 travelers in 1978 to 189/100,000 in 1985. The increased risk of malaria infection for U.S. travelers to Kenya has been attributed to the spread of resistance to chloroquine (*3*).

The 80% attack rate in the Louisiana group was considerably higher than that experienced by most U.S. travelers to Kenya. Malaria transmission in Kenya was particularly intense in June, following the rainy season in April and May. Also, the highly malarious areas in western Kenya visited by this group are not generally frequented by U.S. tourists.

The infections acquired in this episode resolved favorably because medical care was obtained early; the diagnosis was made quickly; and effective therapy was given promptly. A review of fatal *P. falciparum* infections among U.S. citizens indicated that lack of prompt and adequate medical care contributed to the fatal outcomes (*5*).

Although all patients in the Louisiana group had used chemoprophylaxis, and chloroquine may not prevent parasitemia and illness, it does appear to moderate the illness and reduce the risk of fatal *P. falciparum* infection (*5,6*). Therefore, it is important that travelers continue to use chloroquine as a prophylactic drug, despite its reduced efficacy to prevent a *P. falciparum* infection in some countries with chloroquine-resistant strains. Susceptible and resistant strains of *P. falciparum* often coexist in the same area, and chloroquine remains an effective drug for prophylaxis of malaria caused by *P. vivax*, *P. ovale*, and *P. malariae*.

Malaria – Continued

Current CDC prophylaxis guidelines recommend use of weekly chloroquine for short-term travelers to countries with chloroquine-resistant *P. falciparum*. In addition, such travelers (except those with histories of sulfonamide intolerance) should also carry one or more treatment doses of Fansidar® with them (adult dosage, three tablets as a single dose) to be taken promptly in the event of a febrile illness during their travel when medical care is not readily available. Prophylaxis with weekly Fansidar® (in addition to chloroquine) may be considered for travelers who will be at very high risk of infection over a long period without access to medical care. If travelers become ill after their return to the United States, medical care should be sought promptly, and the physician should be informed of the recent travel. Doxycycline *alone* taken daily during travel and for 6 weeks after leaving the malarious area is an alternative to the regimen indicated above for short-term travel to areas with chloroquine-resistant *P. falciparum* (adult dose 100 mg daily). It is particularly appropriate for individuals with histories of sulfonamide intolerance (*4*).

(Continued on page 573)

TABLE I. Summary—cases specified notifiable diseases, United States

Disease	36th Week Ending			Cumulative, 36th Week Ending		
	Sept. 6, 1986	Sept. 7, 1985	Median 1981-1985	Sept. 6, 1986	Sept. 7, 1985	Median 1981-1985
Acquired Immunodeficiency Syndrome (AIDS)	145	140	N	8,499	5,279	N
Aseptic meningitis	295	418	357	5,866	5,416	5,416
Encephalitis: Primary (arthropod-borne & unspec.)	35	40	66	689	768	893
Post-infectious	2	4	2	76	97	67
Gonorrhea: Civilian	12,012	17,219	17,664	594,805	603,153	615,117
Military	216	342	492	11,365	14,591	16,728
Hepatitis: Type A	414	459	421	14,924	15,040	15,040
Type B	409	565	479	17,744	17,598	16,358
Non A, Non B	63	76	N	2,443	2,829	N
Unspecified	56	108	135	3,142	3,914	4,903
Legionellosis	16	14	N	437	487	N
Leprosy	3	3	3	178	265	172
Malaria	12	31	31	719	709	709
Measles: Total*	37	29	20	5,345	2,417	2,306
Indigenous	35	19	N	5,100	2,010	N
Imported	2	10	N	245	407	N
Meningococcal infections: Total	26	36	32	1,806	1,734	2,032
Civilian	26	36	32	1,804	1,728	2,028
Military	-	-	-	2	6	10
Mumps	119	24	24	3,445	2,194	2,421
Pertussis	71	159	107	2,084	1,998	1,534
Rubella (German measles)	9	2	17	402	543	770
Syphilis (Primary & Secondary): Civilian	294	391	458	17,710	18,329	20,900
Military	1	2	7	114	121	257
Toxic Shock syndrome	5	8	N	246	271	N
Tuberculosis	309	357	407	14,864	14,613	16,005
Tularemia	4	5	8	98	124	181
Typhoid fever	5	15	11	195	241	272
Typhus fever, tick-borne (RMSF)	17	27	29	565	503	806
Rabies, animal	90	122	132	3,816	3,697	4,420

TABLE II. Notifiable diseases of low frequency, United States

	Cum 1986		Cum 1986
Anthrax	-	Leptospirosis (Mass. 1)	25
Botulism: Foodborne	6	Plague	6
Infant	37	Poliomyelitis, Paralytic	-
Other	1	Psittacosis (Minn. 1, Colo. 2)	74
Brucellosis (Mich. 1)	55	Rabies, human	-
Cholera	-	Tetanus (Ala. 1, La. 2)	47
Congenital rubella syndrome (N.Y. City 2)	4	Trichinosis	21
Congenital syphilis, ages < 1 year	107	Typhus fever, flea-borne (endemic, murine)	34
Diphtheria	-		

*One of the 37 reported cases for this week was imported from a foreign country or can be directly traceable to a known internationally imported case within two generations.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending September 6, 1986 and September 7, 1985 (36th Week)

Reporting Area	AIDS	Aseptic Menin-gitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionel-losis	Leprosy
			Primary	Post-in-fectious			A	B	NA,NB	Unspeci-fied		
	Cum 1986	1986	Cum 1986	Cum 1986	Cum 1986	Cum 1985	1986	1986	1986	1986	1986	Cum 1986
UNITED STATES	8,499	295	689	76	594,805	603,153	414	409	63	56	16	178
NEW ENGLAND	375	10	18	3	15,310	15,809	20	40	2	10	-	6
Maine	14	2	-	-	623	776	1	6	-	-	-	-
N H	10	-	2	-	384	405	-	-	-	1	-	-
Vt	4	1	3	2	174	221	-	1	-	-	-	-
Mass	203	4	4	-	6,091	6,083	5	17	1	9	-	6
R I	21	-	-	-	1,188	1,260	-	1	-	-	-	-
Conn	123	3	9	1	6,850	7,064	14	15	1	-	-	-
MID ATLANTIC	3,267	41	75	7	100,551	87,130	9	11	2	-	-	12
Upstate N Y	299	35	27	4	11,966	11,659	9	11	2	-	-	1
N Y City	2,205	-	15	-	57,447	43,733	-	-	-	-	-	10
N J	529	6	10	-	13,404	13,119	-	-	-	-	-	-
Pa	234	-	23	3	17,734	18,619	-	-	-	-	-	1
E N CENTRAL	528	92	196	11	77,021	80,231	25	25	1	1	5	4
Ohio	132	37	67	3	19,702	20,388	8	13	-	-	2	-
Ind	50	U	42	3	8,060	8,679	U	U	U	U	U	-
Ill	243	18	41	4	21,463	20,923	-	-	-	-	-	3
Mich	78	37	36	1	24,870	22,357	17	12	1	1	3	1
Wis	25	-	10	-	2,926	7,884	-	-	-	-	-	-
W N CENTRAL	168	4	37	8	25,581	28,190	16	21	4	-	2	2
Minn	60	1	17	-	3,730	4,168	7	11	3	-	1	1
Iowa	12	2	10	-	2,637	2,997	1	4	1	-	-	-
Mo	60	1	1	-	12,726	13,559	1	3	-	-	-	-
N Dak	2	-	1	-	224	190	-	-	-	-	-	-
S Dak	1	-	7	-	532	527	2	-	-	-	-	-
Nebr	8	-	-	1	1,986	2,481	3	3	-	-	1	-
Kans	25	-	1	7	3,746	4,268	2	-	-	-	-	1
S ATLANTIC	1,192	46	92	26	155,225	156,890	47	111	12	5	6	2
Del	18	-	6	-	2,534	2,894	5	-	-	-	-	-
Md	123	9	25	1	18,482	20,188	5	32	5	2	1	-
D C	151	-	-	1	11,561	10,508	-	-	-	-	-	-
Va	108	13	28	1	12,652	13,126	4	15	1	-	-	1
W Va	7	4	19	-	1,544	1,821	2	-	-	-	-	-
N C	47	1	12	1	24,316	24,332	-	11	2	-	-	-
S C	29	2	-	-	13,593	15,118	-	12	-	1	-	-
Ga	170	9	-	1	26,292	31,615	4	20	2	-	3	-
Fla	539	8	2	21	44,251	37,288	27	21	2	2	2	1
E S CENTRAL	111	25	46	3	48,650	51,151	10	26	1	1	1	1
Ky	25	11	22	1	5,358	5,803	1	4	-	-	-	-
Tenn	53	8	4	1	18,761	19,551	4	12	1	1	-	-
Ala	19	5	19	1	13,919	15,698	1	5	-	-	1	1
Miss	14	1	1	-	10,612	10,099	4	5	-	-	-	-
W S CENTRAL	495	30	91	6	70,972	76,234	46	18	6	11	-	16
Ark	22	-	-	2	6,635	7,333	5	1	3	-	-	-
La	113	3	3	-	12,706	14,689	7	1	-	3	-	1
Okla	27	4	16	-	8,097	8,216	4	-	-	2	-	-
Tex	333	23	72	4	43,534	45,996	30	16	3	6	-	15
MOUNTAIN	210	6	24	1	17,739	18,771	72	54	6	5	1	11
Mont	4	1	-	1	498	528	1	-	1	-	-	-
Idaho	2	-	-	-	558	573	16	-	1	-	-	-
Wyo	4	-	2	-	386	432	-	-	-	-	-	-
Colo	97	3	4	-	4,630	5,525	3	7	-	1	-	3
N Mex	13	-	3	-	1,753	2,150	21	13	-	-	1	-
Ariz	53	-	8	-	5,757	5,483	28	29	3	4	-	5
Utah	13	1	5	-	757	860	-	-	-	-	-	1
Nev	24	1	2	-	3,400	3,220	3	5	1	-	-	2
PACIFIC	2,153	41	110	11	83,756	88,747	169	103	29	23	1	124
Wash	93	7	12	-	6,326	6,696	36	32	5	6	-	14
Oreg	47	-	-	-	3,496	4,408	31	22	5	-	-	-
Calif	1,968	28	95	11	71,128	74,336	101	46	19	17	-	87
Alaska	11	3	3	-	1,893	2,050	-	2	-	-	1	-
Hawaii	34	3	-	-	913	1,257	1	1	-	-	-	23
Guam	-	-	-	-	132	143	2	-	-	-	-	1
P R	76	7	5	-	1,599	2,289	-	8	-	1	-	7
V I	3	U	-	-	166	332	U	U	U	U	U	-
Pac Trust Terr	-	-	-	-	326	655	1	-	-	3	-	39
Amer Samoa	-	-	-	-	31	-	2	-	-	-	-	2

N Not notifiable U Unavailable

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending September 6, 1986 and September 7, 1985 (36th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported *		Total									
	Cum. 1986	1986	Cum. 1986	1986	Cum. 1986	Cum. 1985	Cum 1986	1986	Cum. 1986	1986	Cum. 1986	Cum. 1985	1986	Cum. 1986	Cum 1985
UNITED STATES	719	35	5,100	2	245	2,417	1,806	119	3,445	71	2,084	1,998	9	402	543
NEW ENGLAND	39	-	77	-	8	126	125	-	52	5	118	93	-	9	12
Maine	2	-	10	-	-	1	23	-	-	-	2	5	-	-	-
N.H.	2	-	41	-	-	-	6	-	12	1	59	38	-	1	2
Vt.	1	-	-	-	-	-	15	-	3	-	3	3	-	1	-
Mass.	20	-	23	-	6	118	29	-	9	-	28	28	-	4	6
R.I.	5	-	2	-	-	-	17	-	9	1	5	12	-	2	-
Conn.	9	-	1	-	2	7	35	-	19	3	21	7	-	1	4
MID ATLANTIC	96	-	1,639	-	23	204	288	3	151	8	146	127	-	31	216
Upstate N.Y.	34	-	68	-	19	85	97	1	55	5	94	66	-	23	17
N.Y. City	25	-	644	-	2	63	57	-	17	-	3	18	-	5	174
N.J.	18	-	905	-	-	28	30	1	37	3	14	4	-	3	11
Pa.	19	-	22	-	2	28	104	1	42	-	35	39	-	-	14
E.N. CENTRAL	45	8	1,005	1	17	515	248	106	2,363	2	269	446	2	39	29
Ohio	13	-	-	-	10	54	100	-	100	-	117	38	-	1	-
Ind.	2	U	17	U	-	57	20	U	31	U	22	135	U	-	1
Ill.	15	6	668	1 †	4	290	68	104	1,780	-	29	46	2	28	12
Mich.	13	2	58	-	-	55	54	2	251	2	26	33	-	8	15
Wis.	2	-	262	-	3	59	6	-	201	-	75	194	-	2	1
W.N. CENTRAL	23	-	322	-	17	11	87	-	85	6	186	140	-	10	19
Minn.	6	-	45	-	4	6	17	-	1	1	45	70	-	-	2
Iowa	1	-	133	-	1	-	11	-	24	5	18	5	-	1	1
Mo.	10	-	25	-	6	2	30	-	15	-	12	27	-	1	7
N. Dak.	-	-	25	-	1	2	-	-	3	-	4	9	-	1	2
S. Dak.	-	-	-	-	-	-	4	-	1	-	14	2	-	-	-
Nebr.	4	-	-	-	-	-	10	-	-	-	1	4	-	-	-
Kans.	2	-	94	-	5	1	15	-	41	-	92	23	-	7	7
S. ATLANTIC	88	15	551	-	56	296	330	2	161	22	613	402	-	10	50
Del.	1	-	1	-	-	-	2	-	-	-	222	-	-	-	1
Md.	12	1	26	-	9	100	44	2	17	1	137	242	-	-	6
D.C.	1	-	-	-	2	15	4	-	-	-	-	-	-	-	-
Va.	22	-	36	-	24	26	56	-	34	3	33	11	-	-	2
W. Va.	4	-	2	-	-	33	3	-	39	-	23	4	-	-	9
N.C.	4	-	2	-	1	9	56	-	14	17	58	20	-	-	-
S.C.	6	-	274	-	-	3	29	-	12	-	13	2	-	-	3
Ga.	9	-	79	-	14	8	50	-	15	1	103	76	-	-	-
Fla.	29	14	131	-	6	102	86	-	30	-	24	47	-	10	29
E.S. CENTRAL	16	1	58	1	9	7	100	2	27	1	43	33	-	4	2
Ky.	4	-	-	-	6	5	24	-	6	-	5	6	-	4	2
Tenn.	1	1	55	-	1	1	36	1	17	-	15	16	-	-	-
Ala.	7	-	1	-	1	-	28	1	3	1	23	7	-	-	-
Miss.	4	-	2	1 §	1	1	12	-	1	-	-	4	-	-	-
W.S. CENTRAL	73	1	597	-	36	425	159	-	152	2	171	272	-	57	32
Ark.	-	-	276	-	2	-	22	-	7	-	11	12	-	-	1
La.	14	-	4	-	-	42	22	-	2	-	11	11	-	-	-
Okla.	9	-	37	-	2	1	21	N	N	2	95	132	-	-	1
Tex.	50	1	280	-	32	382	94	-	143	-	54	117	-	57	30
MOUNTAIN	29	2	299	-	26	529	91	2	208	7	207	146	1	23	5
Mont.	-	-	-	-	8	137	8	-	5	1	13	8	-	2	-
Idaho	1	-	1	-	-	137	3	1	7	-	33	9	-	-	1
Wyo.	-	-	-	-	-	-	2	-	-	-	4	-	-	1	-
Colo.	8	-	2	-	5	13	15	-	12	4	57	51	-	1	-
N. Mex.	5	-	32	-	7	6	9	N	N	1	20	11	-	-	2
Ariz.	10	-	252	-	6	236	19	1	169	1	48	27	-	2	1
Utah	2	2	11	-	-	-	9	-	10	-	29	40	1	14	-
Nev.	3	-	1	-	-	-	26	-	5	-	3	-	-	3	1
PACIFIC	310	8	552	-	53	304	378	4	246	18	331	339	6	219	178
Wash.	22	-	158	-	25	66	54	1	8	16	99	58	-	14	11
Oreg.	15	-	4	-	4	4	31	N	N	-	10	40	-	1	1
Calif.	272	8	369	-	22	213	280	2	214	1	211	200	5	199	117
Alaska	-	-	-	-	-	-	11	-	6	-	2	29	-	-	1
Hawaii	1	-	21	-	2	21	2	1	18	1	9	12	1	5	48
Guam	1	-	4	-	1	11	-	-	4	-	-	-	-	3	2
P.R.	4	-	33	-	-	54	2	-	26	-	13	10	-	60	25
V.I.	-	U	-	U	-	10	-	U	13	U	-	-	U	-	-
Pac. Trust Terr.	-	-	-	-	-	-	1	3	10	-	-	-	-	2	-
Amer. Samoa	-	-	2	-	-	-	-	-	4	-	-	-	-	1	-

*For measles only, imported cases includes both out-of-state and international importations.

N: Not notifiable U: Unavailable †International §Out-of-state

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending September 6, 1986 and September 7, 1985 (36th Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum 1986	Cum 1985	1986	Cum 1986	Cum 1985	Cum 1986	Cum 1986	Cum 1986	Cum 1986
UNITED STATES	17,710	18,329	5	14,864	14,613	98	195	565 +6	3,816
NEW ENGLAND	331	370	-	486	505	1	11	10	5
Maine	15	11	-	32	35	-	-	-	-
N H	10	9	-	19	16	-	-	1	-
Vt	8	5	-	13	4	-	-	-	-
Mass	176	184	-	255	303	1	9	3	-
R I	18	12	-	40	38	-	-	3	3
Conn	104	149	-	127	109	-	2	3	2
MID ATLANTIC	2,556	2,420	-	3,009	2,671	1	15	25 +1	457
Upstate N Y	116	181	-	430	466	-	3	15 1	59
N Y City	1,447	1,495	-	1,559	1,286	-	6	5	-
N J	461	483	-	518	378	1	5	2	16
Pa	532	261	-	502	541	-	1	3	382
E N CENTRAL	687	733	1	1,777	1,804	-	16	51 -19	97
Ohio	94	103	-	320	324	-	4	46 -10	9
Ind	80	67	U	181	220	-	2	-	14
Ill	351	362	-	756	781	-	2	2 1	28
Mich	125	154	1	435	371	-	6	3	21
Wis	37	47	-	85	108	-	2	-	25
W N CENTRAL	153	156	1	432	407	29	8	39	615
Minn	27	32	1	107	86	-	1	1	90
Iowa	6	17	-	35	44	1	-	1	137
Mo	81	77	-	214	199	23	6	20	64
N Dak	3	2	-	6	8	-	-	1	132
S Dak	4	5	-	18	19	2	-	6	126
Nebr	11	7	-	7	13	1	-	4	22
Kans	21	16	-	45	38	2	1	6	44
S ATLANTIC	5,312	5,411	-	2,820	2,962	9	28	261 +5	918
Del	36	28	-	27	27	-	1	1	-
Md	295	320	-	218	262	2	8	28	459
D C	211	241	-	94	115	1	2	-	26
Va	257	210	-	233	260	2	6	44 3	126
W Va	18	15	-	85	80	-	3	7	31
N C	345	468	-	383	375	1	4	90	7
S C	464	564	-	378	358	-	-	60 1	42
Ga	1,043	946	-	437	503	3	-	30 1	146
Fla	2,643	2,619	-	965	982	-	4	1	81
E S CENTRAL	1,187	1,391	-	1,295	1,289	8	2	74 +8	245
Ky	54	45	-	307	301	3	-	17	67
Tenn	421	429	-	388	375	4	1	33 6	97
Ala	382	441	-	404	388	1	-	14	79
Miss	330	476	-	196	225	-	1	10 2	2
W S CENTRAL	3,560	4,198	1	1,902	1,789	43	15	96 +1	548
Ark	167	218	-	252	199	32	-	5 1	125
La	605	727	-	320	264	1	1	-	16
Okla	95	123	1	184	177	6	1	76	50
Tex	2,693	3,130	-	1,146	1,149	4	13	15	357
MOUNTAIN	408	495	2	353	376	6	9	8	532
Mont	6	5	-	20	46	1	1	4	176
Idaho	10	4	-	16	17	-	-	-	4
Wyo	1	7	-	-	5	-	-	1	226
Colo	100	121	1	30	43	2	1	3	23
N Mex	52	95	-	69	67	1	-	-	6
Ariz	167	230	1	168	164	-	4	-	87
Utah	12	5	-	28	11	1	2	-	3
Nev	60	28	-	22	23	1	1	-	7
PACIFIC	3,516	3,155	-	2,790	2,810	1	91	1	399
Wash	99	82	-	134	161	-	3	-	5
Oreg	75	64	-	97	90	-	-	-	-
Calif	3,316	2,957	-	2,391	2,359	-	84	1	386
Alaska	1	2	-	37	71	1	1	-	8
Hawaii	25	50	-	131	129	-	3	-	-
Guam	1	2	-	34	31	-	1	-	-
P R	605	548	-	231	240	-	5	-	35
V I	-	1	U	1	1	-	-	-	-
Pac Trust Terr	196	92	-	50	44	-	43	-	-
Amer Samoa	-	-	-	5	-	-	-	-	-

U Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending September 6, 1986 (36th Week)

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	588	401	114	44	8	21	30
Boston, Mass.	136	77	40	12	3	4	10
Bridgeport, Conn.	53	42	6	4	-	1	3
Cambridge, Mass.	21	16	5	-	-	-	2
Fall River, Mass.	19	15	4	-	-	-	-
Hartford, Conn.	44	26	11	4	2	1	1
Lowell, Mass.	35	23	7	4	1	-	1
Lynn, Mass.	20	15	2	2	-	1	1
New Bedford, Mass.	16	14	1	1	-	-	2
New Haven, Conn.	42	31	4	4	1	2	1
Providence, R.I.	69	51	8	3	-	7	4
Somerville, Mass.	4	3	1	-	-	-	-
Springfield, Mass.	38	21	9	5	-	3	-
Waterbury, Conn.	33	27	4	2	-	-	2
Worcester, Mass.	58	40	12	3	1	2	3
MID ATLANTIC	2,355	1,488	513	234	60	59	110
Albany, N.Y.	46	33	7	2	2	2	2
Allentown, Pa.	15	13	2	-	-	-	-
Buffalo, N.Y.	146	93	39	5	3	6	14
Camden, N.J.	46	25	10	4	7	-	1
Elizabeth, N.J.	18	14	3	1	-	-	-
Erie, Pa.†	41	33	6	2	-	-	4
Jersey City, N.J.	41	23	11	7	-	-	1
N.Y. City, N.Y.	1,164	701	263	145	28	27	51
Newark, N.J.	63	30	14	12	2	4	3
Paterson, N.J.	23	6	9	5	3	-	2
Philadelphia, Pa.	397	267	81	30	6	13	17
Pittsburgh, Pa.†	28	22	3	3	-	-	1
Reading, Pa.	27	19	6	1	1	-	4
Rochester, N.Y.	107	75	19	6	5	2	6
Schenectady, N.Y.	22	17	4	-	1	-	-
Scranton, Pa.†	26	16	9	1	-	-	-
Syracuse, N.Y.	57	37	13	4	1	2	-
Trenton, N.J.	37	22	8	4	1	2	1
Utica, N.Y.	24	19	4	1	-	-	1
Yonkers, N.Y.	27	23	2	1	-	1	2
E.N. CENTRAL	2,008	1,282	450	142	55	79	65
Akron, Ohio	42	23	9	5	1	4	-
Canton, Ohio	26	19	3	2	1	1	1
Chicago, Ill.§	564	362	125	45	10	22	16
Cincinnati, Ohio	123	73	36	10	3	1	7
Cleveland, Ohio	134	87	28	9	4	6	1
Columbus, Ohio	127	72	30	13	2	10	2
Dayton, Ohio	80	59	13	4	2	2	3
Detroit, Mich.	208	116	52	19	15	6	5
Evansville, Ind.	30	22	6	-	-	2	-
Fort Wayne, Ind.	50	35	9	4	-	2	5
Gary, Ind.	18	12	6	-	-	-	-
Grand Rapids, Mich.	52	32	11	3	3	3	1
Indianapolis, Ind.	137	84	30	9	3	11	6
Madison, Wis.	47	31	6	4	3	3	3
Milwaukee, Wis.	118	76	26	7	6	3	-
Peoria, Ill.	32	22	7	3	-	-	4
Rockford, Ill.	40	30	9	1	-	-	1
South Bend, Ind.	31	24	7	-	-	-	2
Toledo, Ohio	89	64	20	1	2	2	6
Youngstown, Ohio	60	39	17	3	-	1	2
W.N. CENTRAL	606	394	131	38	22	21	25
Des Moines, Iowa	36	25	9	1	1	-	-
Duluth, Minn.	23	19	4	-	-	-	-
Kansas City, Kans.	31	16	12	1	1	1	1
Kansas City, Mo.	117	67	30	13	4	3	7
Lincoln, Nebr.	23	17	3	3	-	-	1
Minneapolis, Minn.	94	62	13	5	7	7	5
Omaha, Nebr.	52	37	10	3	2	-	4
St. Louis, Mo.	144	97	27	7	5	8	6
St. Paul, Minn.	37	24	9	2	1	1	-
Wichita, Kans.	49	30	14	3	1	1	1

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,075	675	240	99	33	28	41
Atlanta, Ga.	108	64	25	12	7	-	-
Baltimore, Md.	189	102	56	21	6	4	7
Charlotte, N.C.	68	43	20	2	1	2	3
Jacksonville, Fla.	67	43	14	5	2	3	1
Miami, Fla.	99	58	20	13	5	3	-
Norfolk, Va.	39	24	9	2	2	2	1
Richmond, Va.	80	51	18	6	2	3	9
Savannah, Ga.	63	50	8	3	2	-	4
St. Petersburg, Fla.	115	98	10	4	2	1	6
Tampa, Fla.	70	41	20	7	1	1	4
Washington, D.C.	160	89	37	23	2	9	5
Wilmington, Del.	17	12	3	1	1	-	1
E.S. CENTRAL	638	407	132	55	19	25	22
Birmingham, Ala.	85	51	18	7	4	5	1
Chattanooga, Tenn.	50	28	11	5	1	5	2
Knoxville, Tenn.	103	64	18	14	7	-	4
Louisville, Ky.	85	49	21	7	1	7	5
Memphis, Tenn.§	157	103	34	10	5	5	7
Mobile, Ala.	43	32	7	3	-	1	-
Montgomery, Ala.	30	20	7	2	-	1	-
Nashville, Tenn.	85	60	16	7	1	1	3
W.S. CENTRAL	1,040	606	239	105	41	49	31
Austin, Tex.	56	39	8	6	2	1	4
Baton Rouge, La.	44	29	13	-	1	1	1
Corpus Christi, Tex.§	39	22	7	7	2	1	-
Dallas, Tex.	161	81	37	21	9	13	2
El Paso, Tex.	40	20	11	5	2	2	-
Fort Worth, Tex.	82	45	19	5	4	9	3
Houston, Tex.	249	137	65	29	9	9	9
Little Rock, Ark.	49	26	13	7	1	2	6
New Orleans, La.	83	59	12	6	2	4	-
San Antonio, Tex.	136	83	29	16	4	4	4
Shreveport, La.	41	27	8	1	4	1	-
Tulsa, Okla.	60	38	17	2	1	2	2
MOUNTAIN	572	333	129	50	37	23	19
Albuquerque, N.Mex.	71	45	15	6	4	1	2
Colo. Springs, Colo.	36	25	5	2	2	2	4
Denver, Colo.	97	50	24	10	8	5	-
Las Vegas, Nev.	75	35	18	10	8	4	4
Ogden, Utah	11	7	1	1	1	1	1
Phoenix, Ariz.	128	73	31	11	5	8	-
Pueblo, Colo.	15	10	4	1	-	-	2
Salt Lake City, Utah	41	15	14	5	6	1	-
Tucson, Ariz.	98	73	17	4	3	1	6
PACIFIC	1,607	1,017	340	137	55	52	80
Berkeley, Calif.	17	12	4	1	-	-	1
Fresno, Calif.	62	40	13	5	1	3	1
Glendale, Calif.	23	18	3	2	-	-	-
Honolulu, Hawaii	63	38	19	2	1	3	6
Long Beach, Calif.	79	57	20	1	1	-	3
Los Angeles, Calif.	452	281	89	51	18	9	8
Oakland, Calif.	70	42	11	12	4	1	7
Pasadena, Calif.§	30	22	5	1	-	2	1
Portland, Oreg.	105	69	14	11	9	2	6
Sacramento, Calif.	118	74	26	7	7	4	17
San Diego, Calif.	101	60	23	7	2	8	8
San Francisco, Calif.	137	85	30	14	-	8	2
San Jose, Calif.	137	84	35	5	5	7	8
Seattle, Wash.	124	71	34	11	7	1	5
Spokane, Wash.	55	39	10	3	-	3	6
Tacoma, Wash.	34	25	4	4	-	1	1
TOTAL	10,489††	6,603	2,288	904	330	357	423

* Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

** Pneumonia and influenza.

† Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

†† Total includes unknown ages.

§ Data not available. Figures are estimates based on average of past 4 weeks.

Malaria — Continued

Because of the limited effectiveness of chloroquine prophylaxis in areas with chloroquine-resistant *P. falciparum*, travelers should be advised to take measures to limit contact with mosquitoes between dusk and dawn. It has been estimated that use of effective personal protective measures can reduce the risk of exposure 10-fold (*6*). Such measures include: using insect repellents containing N,N diethylmetatoluamide (DEET) on exposed areas of the skin; using pyrethrum-containing flying-insect spray in living and sleeping areas during evening and nighttime hours; using mosquito nets; remaining in well-screened areas; and wearing clothes that cover most of the body during evening and nighttime hours.

Detailed information regarding malaria prophylaxis and other health precautions is provided in the publication, "Health Information for International Travel, 1986" (*8*)*.

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*Available from the U.S. Government Printing Office, Washington, D.C., 20402.

International Notes

Chikungunya Fever among U.S. Peace Corps Volunteers — Republic of the Philippines

Three cases of chikungunya fever were diagnosed recently among U.S. Peace Corps volunteers stationed in the Republic of the Philippines. These are the first cases reported from the Philippines since 1968. The cases were diagnosed as part of a collaborative long-term infectious disease study by the U.S. Naval Medical Research Unit No. 2 and the U.S. Peace Corps in the Philippines.

The first patient, a 27-year-old male, was stationed in Mindanao, one of the southernmost islands of the Philippine archipelago. His illness occurred in June 1985 but was not diagnosed until October 1985. The second case occurred mid-November 1985 in a 31-year-old female stationed on Cebu, one of the islands that forms the central portion of the archipelago. The third case occurred in January 1986 in a 23-year-old female stationed on the island of Masbate, also in the central part of the country but north of Cebu.

Chikungunya Fever — Continued

All three cases were diagnosed using an IgM antibody-capture enzyme-linked immunosorbent assay (ELISA). Chikungunya virus was isolated from a blood sample obtained from one of the patients 3 days after onset of fever. The clinical presentations were typical of chikungunya fever and included acute onset of high fever, severe joint pain, and skin rash. The illnesses persisted 3-7 days, and all patients recovered uneventfully.

Chikungunya virus may have been introduced into the southern Philippines from Indonesia. The first case detected in the Philippines occurred in an area of Mindanao, Davao del Sur, which is approximately 200 km north of central Indonesia; the area is reportedly frequently visited by Indonesian traders and fishermen.

The full extent of epidemic activity in the Philippines is not known. One of the Peace Corps volunteer patients reported many cases of a chikungunya-like illness (locally termed "Chinese fever" or "Asian flu") in the Filipino population of the village where she lived. The potential for widespread activity is present because of the large population of susceptibles and the abundance of the vector, *Aedes aegypti*, particularly in large urban areas like Manila.

Reported by CG Hayes, PhD, T O'Rourke, MD, U.S. Naval Medical Research Unit No. 2; A Sarr, US Peace Corps, Philippines; Div of Vector-Borne Viral Diseases, Center for Infectious Diseases, CDC.

Editorial Note: The word "chikungunya" is Swahili for "that which bends up," in reference to the stooped posture of patients afflicted with the severe joint pain associated with this disease. The disease was first recognized in epidemic form in East Africa in 1952-1953 (*1*). The etiologic agent, chikungunya virus, is arthropod-borne and has been placed in the family Togaviridae, genus *Alphavirus* (*2*). Human infections are acquired by the bite of infected *A. aegypti* mosquitoes, and epidemics are sustained by human-mosquito-human transmission. The epidemic cycle is thus similar to those of dengue and urban yellow fever.

Since 1954, the virus has been implicated as the cause of epidemics in Asian countries including the Philippines, Thailand, Cambodia, Vietnam, India, Burma, and Sri Lanka. Epidemics of chikungunya were documented in the Philippines in 1954, 1956, and 1968 (*3-4*). Serosurveys suggest that virus activity occurred in the central and southern part of the archipelago (*5*). Chikungunya virus has been isolated from humans and mosquitoes in eastern, southern, western, and central Africa and in southeastern Asia, where it has been responsible for illnesses in hundreds to thousands of individuals.

Chikungunya fever is characterized by sudden onset, chills and fever, headache, nausea, vomiting, arthralgia, and rash. In contrast to dengue, chikungunya is characterized by a briefer febrile episode, by persistent arthralgia in some cases, and by the absence of fatalities. However, similarities between clinical appearances of the two diseases probably account for misclassification and some underreporting of chikungunya fever in areas with endemic dengue; therefore, laboratory confirmation of reported cases is important. The IgM-capture ELISA used for diagnosis of these patients is especially useful in this regard (*6*).

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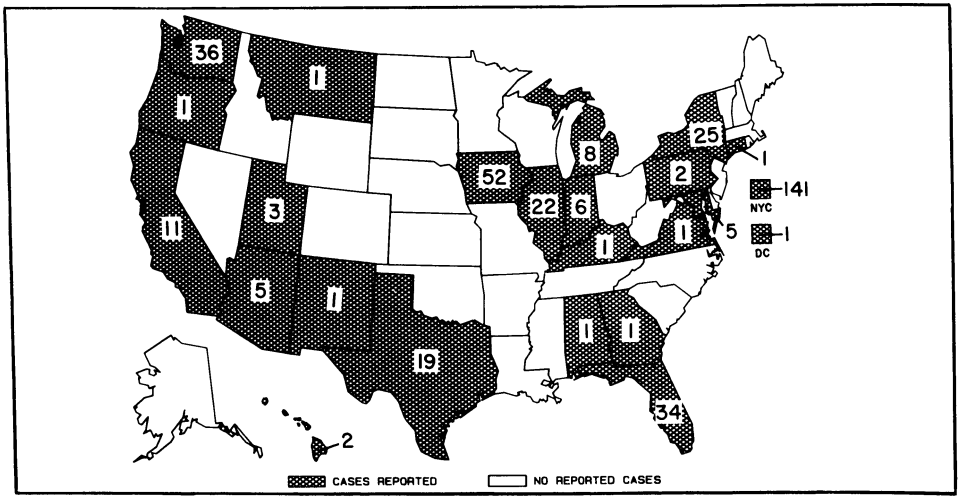
Notice to Readers

National Symposium: Prevention of Work-Related Diseases and Injuries

The second National Symposium on the Prevention of Leading Work-Related Diseases and Injuries will be held October 28-31, 1986, in Cincinnati, Ohio. The symposium is cosponsored by the Association of Schools of Public Health, the Association of University Programs in Occupational Health and Safety, and the National Institute for Occupational Safety and Health (NIOSH), CDC. Draft strategies for preventing reproductive disorders, neurotoxic disorders, noise-induced loss of hearing, dermatologic conditions, and psychologic disorders will be discussed and modified. Information may be obtained from the Association of Schools of Public Health, 1015 Fifteenth Street N.W., Suite 404, Washington, D.C., telephone (202) 842-4812, or from NIOSH, CDC, telephone (404) 329-3794.

FIGURE I. Reported measles cases — United States, weeks 32-35, 1986



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The data in this report are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday.

The editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Such reports and any other matters pertaining to editorial or other textual considerations should be addressed to: ATTN: Editor, *Morbidity and Mortality Weekly Report,* Centers for Disease Control, Atlanta, Georgia 30333.

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